

06/23/2009

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A rotary fluid device comprising:

a rotation mechanism including a cylinder having an annular cylinder chamber and an annular piston disposed in the cylinder chamber to be eccentric relative to the cylinder, the annular piston dividing the cylinder chamber into an outer working chamber and an inner working chamber, and the piston being C-shaped to form a gap and having a swing bushing therein;

a blade disposed in the cylinder chamber to divide each of the inner and outer working chambers into a high-pressure space and a low-pressure space, the cylinder and the piston being relatively movable by rotation of a driving shaft, the blade extending between an inner peripheral wall surface and an outer peripheral wall surface of the cylinder chamber through the gap of the piston, and the swing bushing being in contact with the piston and the blade such that the blade is reciprocable and the blade is swingable relative to the piston;
and

a suction mechanism configured to introduce refrigerant into the annular cylinder chamber,

one of the inner and outer working chambers being a compression chamber which compresses and discharges fluid with a progression of a relative movement between the cylinder and the piston, the compression chamber being in fluid communication with a suction pipe arranged to supply the compression chamber with fluid and a discharge pipe arranged to receive compressed fluid from the compression chamber,

the other of the inner and outer working chambers being an expansion chamber which expands and discharges fluid with a progression of a relative movement between the cylinder and the piston with expansion work of the expansion chamber being recovered to assist in driving the driving shaft, the expansion chamber being in fluid communication with an inlet pipe arranged to supply the expansion chamber with fluid and an outlet pipe arranged to discharge expanded fluid from the expansion chamber,

the suction mechanism being configured to introduce refrigerant into the expansion chamber from the inlet pipe in a predetermined rotation angle range of the piston such that a

refrigerant expansion process in the expansion chamber occurs in a predetermined range within each rotation cycle of the piston relative to the cylinder, and

the suction mechanism including a first path and a second path, the first path having one end communicating with an inlet port that is open to the expansion chamber and an other end having an opening in a vicinity of communicating with the inlet pipe, the second path having an arc shape that is curved around a shaft center of the drive shaft and communicating between the inlet pipe and the other end of the first path to cause the refrigerant to flow into the expansion chamber when the other end is at a predetermined rotation angle range of the piston.

2. (Cancelled)

3. (Previously Presented) The rotary fluid device of claim 1, wherein the compression chamber is a working chamber formed at an outer side of the cylinder chamber, and

the expansion chamber is a working chamber formed at an inner side of the cylinder chamber.

4. (Previously Presented) The rotary fluid device of claim 1, further comprising

a drive mechanism for driving the rotation mechanism, with a rotation speed of the drive mechanism being variably controlled.

5. (Cancelled)